

## Lab 10 - Calling Privileges

### CCNA Voice Lab 10

#### Calling Privileges

##### Lab Objective:

The objective of this lab exercise is for you to learn and understand how to implement calling privilege configuration in Cisco IOS voice gateways

##### Topic Description:

Class of Restrictions (COR) is a Cisco voice gateway feature that enables Class of Service (COS) or calling privileges to be assigned

##### Lab Difficulty:

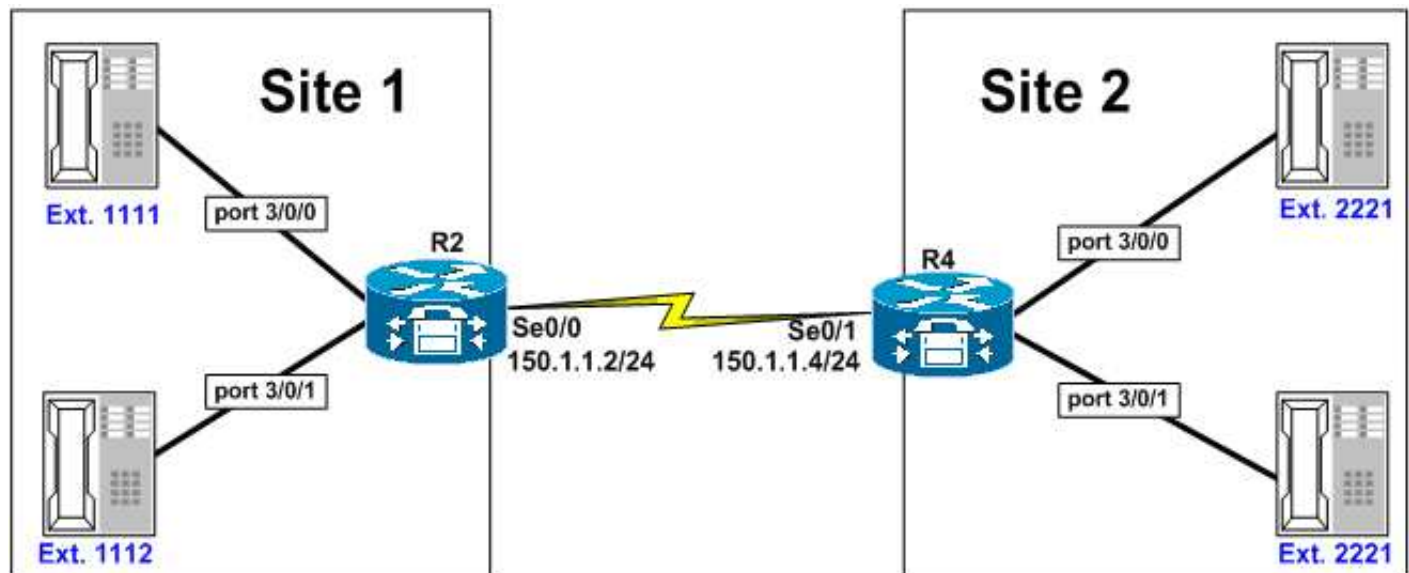
This lab has a difficulty rating of 8/10

##### Readiness Assessment:

When ready for your exam, you should be able to complete this lab in no more than 15 minutes

##### Lab Topology:

Please use the following topology to complete this lab exercise:



#### Lab 10 Configuration Tasks

##### Task 1:

Configure the hostnames and IP addresses on R2 and R4 as illustrated in the diagram. Configure R4 to provide clocking to R2. Configure the clock rate on R4 as 800Kbps

##### Task 2:

Configure POTS dial peers for the connected phones on R2 and R4 as illustrated in the diagram. Use any dial peer numbers you want

##### Task 3:

Configure VoIP dial peers on R2 and R4 for the extensions at either location. Configure two dial peers for each extension using the specific extension number as the destination pattern. Use any dial peer numbers you want

#### Task 4:

Configure COR on R2 such that extension 1111, which belongs to the assistant, can only call extension 2222, which belongs to the assistant on R4; however, extension 1112, which belongs to the manager should be permitted to call both extensions 2221 and 2222 on R4

#### Task 5:

Verify your configuration by placing calls from R2 to R4

## Lab 10 Configuration and Verification

#### Task 1:

```
R2(config)#hostname R2
R2(config)#interface Serial0/0
R2(config-if)#description .Connected To R4 Serial 0/1.
R2(config-if)#ip address 150.1.1.2 255.255.255.0
```

```
R4(config)#hostname R4
R4(config)#interface Serial0/1
R4(config-if)#description .Connected To R2 Serial 0/0
R4(config-if)#ip address 150.1.1.4 255.255.255.0
R4(config-if)#clock rate 800000
```

Verify connectivity by performing a simple ping between the two routers

**R2#ping 150.1.1.4**

Type escape sequence to abort.  
Sending 5, 100-byte ICMP Echos to 150.1.1.4, timeout is 2 seconds:  
!!!!  
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms

**R4#ping 150.1.1.2**

Type escape sequence to abort.  
Sending 5, 100-byte ICMP Echos to 150.1.1.2, timeout is 2 seconds:  
!!!!  
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/8 ms

#### Task 2:

```
R2(config)#dial-peer voice 1 pots
R2(config-dial-peer)#destination-pattern 1111
R2(config-dial-peer)#port 3/0/0
R2(config-dial-peer)#exit
R2(config)#dial-peer voice 2 pots
R2(config-dial-peer)#destination-pattern 1112
R2(config-dial-peer)#port 3/0/1
R2(config-dial-peer)#exit
```

```
R4(config)#dial-peer voice 1 pots
R4(config-dial-peer)#destination-pattern 2221
R4(config-dial-peer)#port 3/0/0
R4(config-dial-peer)#exit
R4(config)#dial-peer voice 2 pots
R4(config-dial-peer)#destination-pattern 2222
R4(config-dial-peer)#port 3/0/1
R4(config-dial-peer)#exit
```

#### Task 3:

```

R2(config)#dial-peer voice 3 voip
R2(config-dial-peer)#destination-pattern 2221
R2(config-dial-peer)#session target ipv4:150.1.1.4
R2(config-dial-peer)#exit
R2(config)#dial-peer voice 4 voip
R2(config-dial-peer)#destination-pattern 2222
R2(config-dial-peer)#session target ipv4:150.1.1.4
R2(config-dial-peer)#exit

```

```

R4(config)#dial-peer voice 3 voip
R4(config-dial-peer)#destination-pattern 1111
R4(config-dial-peer)#session target ipv4:150.1.1.2
R4(config-dial-peer)#exit
R4(config)#dial-peer voice 4 voip
R4(config-dial-peer)#destination-pattern 1112
R4(config-dial-peer)#session target ipv4:150.1.1.2
R4(config-dial-peer)#exit

```

#### Task 4:

```

R2(config)#dial-peer cor custom
R2(config-dp-cor)#name Extension-2221-Only
R2(config-dp-cor)#name Extension-2221-2222
R2(config-dp-cor)#exit
R2(config)#dial-peer cor list Assistant
R2(config-dp-corlist)#member Extension-2221-Only
R2(config-dp-corlist)#exit
R2(config)#dial-peer cor list Manager
R2(config-dp-corlist)#member Extension-2221-Only
R2(config-dp-corlist)#member Extension-2221-2222
R2(config-dp-corlist)#exit
R2(config)#dial-peer cor list Dial-Peer-3
R2(config-dp-corlist)#member Extension-2221-Only
R2(config-dp-corlist)#exit
R2(config)#dial-peer cor list Dial-Peer-4
R2(config-dp-corlist)#member Extension-2221-2222
R2(config-dp-corlist)#exit
R2(config)#dial-peer voice 3 voip
R2(config-dial-peer)#corlist outgoing Dial-Peer-3
R2(config-dial-peer)#exit
R2(config)#dial-peer voice 4 voip
R2(config-dial-peer)#corlist outgoing Dial-Peer-4
R2(config-dial-peer)#exit
R2(config)#dial-peer voice 1 pots
R2(config-dial-peer)#corlist incoming Assistant
R2(config-dial-peer)#exit
R2(config)#dial-peer voice 2 pots
R2(config-dial-peer)#corlist incoming Manager

```

#### Task 5:

To verify this configuration, a call is made from extension 1111 to extension 2221. Based on the COR configuration, this will complete successfully:

```

R2#show call active voice compact
<callID>  A/O FAX T<sec> Codec    type Peer Address    IP R<ip>:<udp>
Total call-legs: 2
      11 ANS   T17   g729r8    TELE P1111
      12 ORG   T17   g729r8    VOIP P2221    150.1.1.4:19318

```

However, a call from extension 1111 to extension 2222 will fail:

```

R2#debug voice ccapi inout
voip ccapi inout debugging is on

```

-[Truncated Output]-

```
*Mar 1 13:12:18.980: //14/xxxxxxxxxxxx/CCAPI/cc_api_call_report_digits_done:
(vdbPtr=0x64B6D9C4, callID=0xE, disp=0, digit_event=0x0, enable=FALSE, consume=FALSE)
*Mar 1 13:12:18.980: //14/C7B843FF801A/CCAPI/cc_api_call_report_digits_done:
Enabled=TRUE, Disposition=0x0, Interface=0x64B6D9C4, Call Id=14
*Mar 1 13:12:18.980: //14/C7B843FF801A/CCAPI/cc_api_call_report_digits_done:
Call Entry(Initial Digit Timeout=10000(ms), Inter Digit Timeout=10000(ms))
*Mar 1 13:12:18.984: //14/C7B843FF801A/CCAPI/ccCallDisconnect:
Cause Value=28, Tag=0x0, Call Entry(Previous Disconnect Cause=0, Disconnect Cause=0)
*Mar 1 13:12:18.984: //14/C7B843FF801A/CCAPI/ccCallDisconnect:
Cause Value=28, Call Entry(Responded=TRUE, Cause Value=28)
```

-[Truncated Output]-

**NOTE:** Cause code 28 is for an Invalid Number Format (Address Incomplete). This cause code indicates that the called user cannot be reached because the called party number is not a valid format or is incomplete. This same message is also used for COR-restricted call fail cause codes.

If extension 1111 was an IP phone for example, you would see the following on the screen:



### Final Relevant Configuration R2:

R2#**show running-config**

Building configuration...

Current configuration : 2033 bytes

!

version 12.4

service timestamps debug datetime msec

service timestamps log datetime msec

no service password-encryption

!

hostname R2

!

```

!
!
!
interface Serial0/0
description .Connected To R4 Serial 0/1.
ip address 150.1.1.2 255.255.255.0
no fair-queue
!
!
!
!
voice-port 3/0/0
!
voice-port 3/0/1
!
voice-port 3/1/0
!
voice-port 3/1/1
!
!
!
!
dial-peer cor custom
name Extension-2221-Only
name Extension-2221-2222
!
!
dial-peer cor list Assistant
member Extension-2221-Only
!
dial-peer cor list Manager
member Extension-2221-Only
member Extension-2221-2222
!
dial-peer cor list Dial-Peer-3
member Extension-2221-Only
!
dial-peer cor list Dial-Peer-4
member Extension-2221-2222
!
!
dial-peer voice 1 pots
corlist incoming Assistant
destination-pattern 1111
port 3/0/0
!
dial-peer voice 2 pots
corlist incoming Manager
destination-pattern 1112
port 3/0/1
!
dial-peer voice 3 voip
corlist outgoing Dial-Peer-3
destination-pattern 2221
session target ipv4:150.1.1.4
!
dial-peer voice 4 voip
corlist outgoing Dial-Peer-4
destination-pattern 2222
session target ipv4:150.1.1.4

```

#### **Final Relevant Configuration R4:**

R4#**show running-config**  
Building configuration...

Current configuration : 1594 bytes

```
!  
version 12.4  
service timestamps debug datetime msec  
service timestamps log datetime msec  
no service password-encryption  
!  
hostname R4  
!  
!  
!  
interface Serial0/1  
description .Connected To R2 Serial 0/0  
ip address 150.1.1.4 255.255.255.0  
clock rate 800000  
!  
!  
!  
voice-port 3/0/0  
!  
voice-port 3/0/1  
!  
voice-port 3/1/0  
!  
voice-port 3/1/1  
!  
!  
!  
dial-peer voice 1 pots  
destination-pattern 2221  
port 3/0/0  
!  
dial-peer voice 2 pots  
destination-pattern 2222  
port 3/0/1  
!  
dial-peer voice 3 voip  
destination-pattern 1111  
session target ipv4:150.1.1.2  
!  
dial-peer voice 4 voip  
destination-pattern 1112  
session target ipv4:150.1.1.2
```

